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	ISBN	1-4842-6503-3
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	Descrizione fisica	1 online resource (XVIII, 564 p. 207 illus.)
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	Nota di contenuto	Chapter 1: Introduction to Reinforcement Learning -- Chapter 2: Path Finding and Navigation -- Chapter 3: Setting Up ML Agents Toolkit -- Chapter 4: Understanding Brain Agents and Academy -- Chapter 5: Deep Reinforcement Learning -- Chapter 6: Competitive Networks for AI Agents -- Chapter 7: Case Studies in ML Agents.
	Sommario/riassunto	Gain an in-depth overview of reinforcement learning for autonomous agents in game development with Unity. This book starts with an introduction to state-based reinforcement learning algorithms involving Markov models, Bellman equations, and writing custom C# code with the aim of contrasting value and policy-based functions in reinforcement learning. Then, you will move on to path finding and navigation meshes in Unity, setting up the ML Agents Toolkit (including how to install and set up ML agents from the GitHub repository), and installing fundamental machine learning libraries and frameworks (such as Tensorflow). You will learn about: deep learning and work through an introduction to Tensorflow for writing neural networks (including perceptron, convolution, and LSTM networks), Q learning with Unity ML agents, and porting trained neural network models in Unity through the Python-C# API. You will also explore the OpenAI Gym Environment used throughout the book. Deep Reinforcement Learning in Unity provides a walk-through of the core fundamentals of deep reinforcement learning algorithms, especially variants of the value estimation, advantage, and policy gradient algorithms (including the

differences between on and off policy algorithms in reinforcement learning). These core algorithms include actor critic, proximal policy, and deep deterministic policy gradients and its variants. And you will be able to write custom neural networks using the Tensorflow and Keras frameworks. Deep learning in games makes the agents learn how they can perform better and collect their rewards in adverse environments without user interference. The book provides a thorough overview of integrating ML Agents with Unity for deep reinforcement learning. You will: Understand how deep reinforcement learning works in games Grasp the fundamentals of deep reinforcement learning Integrate these fundamentals with the Unity ML Toolkit SDK Gain insights into practical neural networks for training Agent Brain in the context of Unity ML Agents Create different models and perform hyper-parameter tuning Understand the Brain-Academy architecture in Unity ML Agents Understand the Python-C# API interface during real-time training of neural networks Grasp the fundamentals of generic neural networks and their variants using Tensorflow Create simulations and visualize agents playing games in Unity.